

REMARKS

This Amendment, submitted in response to the Office Action dated March 3, 2004, is believed to be fully responsive to each point of rejection raised therein. Accordingly, favorable reconsideration on the merits is respectfully requested.

Claims 1-18 remain pending in the application. Claim 11 is objected to for containing informalities. Claim 18 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicant has amended the claims to obviate these matters as set forth above.

With regard to the prior art rejections, claim 16 has been rejected under 35 U.S.C. § 102 as being anticipated by Schaede et al. (U.S.P. 5,764,367, hereafter "Schaede"). Claims 1, 2, 5-7, 9-11, 13, 15, 17 and 18 have been rejected under 35 U.S.C. § 103 as being unpatentable over Halter (previously of record) in view of Miranda (U.S.P. 3,594,087). Claims 3-4, 12 and 14 have been rejected under 35 U.S.C. § 103 as being unpatentable over Halter in view of Miranda and further in view of Anzai (previously of record). Claim 8 has been rejected under 35 U.S.C. § 103 as being unpatentable over Halter in view of Miranda and further in view of Ushio (previously of record). Applicant submits the following arguments in traversal of the prior art rejections.

Applicant's invention relates to an edge detector for a light-transmissive medium, whereby the presence of an edge can be determined by using sets of light data that pass through the edge and that bypass the edge. Comparison of such information permits the edge to be detected accurately, an effect that could not be achieved by conventional detectors for light transmissive materials.

Turning to the newly cited art, Schaede relates to the detection of an edge of a sheet or web of printing materials, which are light-absorbent, or opaque to light. Col. 3, line 66 to col. 4, line 6. In relevant part, Schaede must rely on the difference in light intensities formed by an edge portion in comparison to the opaque portion in order to function. Col. 7, lines 2-12. Since a light transmissive medium would not produce the intensity differential that is central to the operation of the Schaede device, Schaede cannot include detection of edges of light transmissive materials as claimed. The Examiner's reliance on sheet 1 as teaching a light transmissive material is not warranted, since Schaede is directed to materials, such as paper, metal or foils which are opaque to light. Therefore, the anticipation rejection of claim 16 is improper.

The Examiner continues to rely on Halter for teaching features of independent claims 1 and 11. The Examiner acknowledges that Halter does not teach an illuminating light reflected by the reflector as parallel light, but cites Miranda to make up for this deficiency. However, Miranda does not teach the leading of light reflected by the reflector as parallel light as the Examiner contends. Even a cursory review of Fig. 2 of Miranda shows that light incident in the direction from the medium 22 and support 24 towards the reflector 26 diverges. Conversely, light reflected from the reflective mirror 26 converges towards the medium 22. Applicant would submit that the medium 22 and support 24 provide diffusive effects which would obviate provision of parallel light. The Examiner cannot merely conclude that the light is parallel light when the Miranda reference contemplates that refractive effects will provide non-parallel light to impinge upon the reflector and be reflected therefrom. Col. 2, line 73 to col. 3, line 5. Therefore, the Examiner's rejection of independent claims 1 and 11 are not supported for at least these reasons.

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Applicant would also maintain that in the primary reference, Halter provides edge detection only based on information that passes through an edge. The Examiner's reliance on col. 4, lines 60-64 does not support the position that any light information that bypasses the edge is used. The cited portion merely categorizes light information that is disturbed by an edge (e.g. refracted) or not disturbed (not refracted). The non-refracted portion would still have passed through the edge, but perhaps at an attenuated level. The discussion cited by the Examiner does not support a bypass of the edge position as claimed. Any ambiguity on this point falls to the burden of the Examiner to demonstrate that the "non disturbed" part necessarily refers to a bypass portion, as opposed to that component of light that passes through the edge but undergoes some attenuation. Claims 2, 5-7, 9-10, 13, 15, 17 and 18 are patentable based on their dependency.

The Examiner's proffered motivation for combining Halter and Miranda is also questionable, if not inconsistent. In order to provide increased contrast, the Examiner indicates that parallel light should be converged. However, converged light, by definition, is not parallel light. The converged or focused light would appear to be the opposite of making light beams parallel. Therefore, Applicant would argue that claims 1 and 11 are patentable for this additional reason.

The remaining references of Anzai and Ushio do not make up for the deficiencies of the primary combination. Therefore, all the pending claims are patentable.

In view of the above, Applicant submits that claims 1-18 are in condition for allowance. Therefore it is respectfully requested that the subject application be passed to issue at the earliest

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possible time. The Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.


Respectfully submitted,

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Date: June 3, 2004